INDEX

ABSTRACTS of papers presented at the Marine Biological Laboratory, 199.
Acetylcholinesterase, reaction of substrates and inhibitors with, 199.
Action of various enzymes on mating type substances of P. calkinsi, 99.
Action potentials in Limulus ocelli, 114.
Algae, role of auxin in, 300.
ALLEN, ROBERT D. Antimitotic substances secreted from eggs, 214.
ALLEN, ROBERT D. The role of the nucleolus in spindle formation, 214.
ALSCHER, RUTH P. and GEORGE I. LAVIN. Birefringence of granules in the epidermis of the leaves of Spinacia oleracea L., 215.
Amino acids, isolation of by ion-exchange resins, 194.
Amphibia, effect of parrot fish thyroid on metamorphosis of, 157.
Amphibians, effect of maleic hydrazide on embryonic and larval growth of, 285.
Annual history of a natural population of Nereis diversicolor, 131.
Annual Report of the Marine Biological Laboratory, 1.
Anti-mitotic effect of rotenone, alleviation by alpha-tocopherol, 208.
Anti-mitotic substances secreted from eggs, 214.
Antithyroid drugs, effects of on I^{131} uptake in frogs, 62.
ASH, FRANK. *See* SAMUEL A. MATTHEWS, 157.
Ascidia ceratodes, uptake of vanadium by, 84.
Autogamy of P. aurelia grown on non-living media, 205.
Auxin as hormonal factor limiting differentiation of xylem cells around a wound, 196.
Auxin control of rhizoid-formation in Bryopsis, 238.
Auxin, role of in algae, 300.

BAILY, NORMAN. *See* SALLY KELLY, 239.

BALZER, DOROTHY T. *See* CLAUDE A. VILLEE, 195, 231.
BALZER, DOROTHY T. and CLAUDE A. VILLEE. Drugs inhibiting growth and nucleic acid synthesis in Arbacia embryos, 204.
BARTON, JAY, II. A new DNA fraction of the cell nucleus, 236.
Bats, body temperatures and metabolic rates of, 289.
BATTLEY, EDWIN H. and IRVING M. KLOTZ. Interaction of sodium and potassium ions with hemoglobin and with hemerythrin, 215.
BENESCH, REINHOLD and RUTH E. BENESCH. Carbonic anhydrase and calcification in the fiddler crab (Uca), 236.
BENESCH, REINHOLD and RUTH E. BENESCH. Polarographic investigation of the reaction between organic mercury compounds and thiols, 196.
BENESCH, RUTH E. and REINHOLD BENESCH. Hemolysis of sheep erythrocytes by organic mercury compounds, 204.
BERG, WILLIAM E. and PHYLLIS B. KUTSKY. Physiological studies of differentiation in Mytilus edulis. I. The oxygen uptake of isolated blastomeres and polar lobes, 47.
BEVELANDER, GERRIT. Calcification in molluscs: The localization of Ca^{45} and P^{32} in the mantle and regenerating shell, 197.
Birefringence of granules in epidermis of leaves of S. oleracea, 215.
BISHOP, DAVID W. Chromatographic analysis of fertilizin from the sand dollar, Echinarachnius parma, 215.
Blastomeres, isolated, 47.
BLATT, WILLIAM. *See* PETER R. MORRISON, 171.
Blood anti-coagulant from surf clams, 230.
Body temperatures of bats, 289.
BOETTIGER, EDWARD G. and E. FURSHPAN. Observations of the flight mechanism of flies, 199.
BONNER, JOHN TYLER, CHAMBLESS JOHNSTON and HAROLD C. URCHEL. Observations on the development of the slime bacterium, Chondromyces crocatus, 194.
BOREI, HANS. The cytochrome system of starfish sperm, 216.
BRADLEY, WALTER O. The effects of certain antithyroid drugs on the uptake of radioactive iodine by the frog thyroid, 62.
BRIDGMAN, ANNA JOSEPHINE. Further studies on growth and the processes of encystment and excystment in Dileptus, 216.
BROOKS, MATILDA M. Oxidation-reduction dyes and "lithium larvae," 217.

BROWN, FRANK A., JR. *See* MURIEL I. SANDEEN, 228; H. MARGUERITE WEBB, 231.

BROWN, FRANK A., JR., MILTON FINGERMAN and MARGARET N. HINES. Hormones controlling the distal retinal pigment of Palaemonetes vulgaris, 217.

BROWN, FRANK A., JR. and GROVER C. STEPHENS. Studies of the daily rhythmicity of the fiddler crab, Uca. Modifications by photoperiod, 71.

BRUMM, ANN. *See* LEON S. CIERESZKO, 207.

BRYANT, SHIRLEY H. and JULIAN M. TOBIAS. Propagated changes in light scattering accompanying activity in nerve, 205.

Bryopsis, rhizoid formation in, 300.

BURBANCK, W. D. and MADELINE P. BURBANCK. Autogamy of Paramecium aurelia (stock 51.7) grown on non-living media, 205.

BUTTERFIELD, WINIFRED. *See* CHARLES B. METZ, 99.

BYERS, HELEN L. Failure to obtain "cytofertilizin" from Arbacia eggs, 218.

CALCIFICATION in molluscs, 197.

Calcium and temperature, effect on furrowing in Arbacia, 229.

Calcium determination, new method for, 222.

Calcium, lytic action of, on pigment of Arbacia egg, 209.

Carbohydrate and lipid metabolism, 203.

Carbonic anhydrase and calcification in Uca, 236.

Carp, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.

Case against correlation between flicker and metabolism of red cells, 212.

Cell differentiation, studies on, in algae, 300.

CHAET, ALFRED B. Heat death in Phascolosoma, 206.

CHAMBERS, EDWARD L. *See* ROBERT CHAMBERS, 206; CHIEN-YUAN KOA, 210.

CHAMBERS, ROBERT. *See* CHIEN-YUAN KAO, 210.

CHAMBERS, ROBERT, EDWARD L. CHAMBERS and CHIEN-YUAN KAO. The internal hydrostatic pressure of the unfertilized activated Fundulus egg exposed to various experimental conditions, 206.

CHAMBERS, ROBERT and CHIEN-YUAN KAO. The physical states of the axoplasm in situ in the nerve of the squid mantle, 206.

Characteristics of the retinal electric response of the ocelli of Limulus, 114.

Chemotropism in Rhizopus, 199.

CHENEY, RALPH HOLT. Behavior of cortical granules in methylated xanthine effects, 207.

Chief cells, nuclear volumes, intranuclear proteins and DNA in, 95.

CHILD, C. M. Oxidation-reduction indicator patterns in regeneration of the foreleg and tail of Triturus torosus larvae, 121.

Chloride ion regulation and oxygen consumption in the crab Ocypode albicans, 259.

Chortophaga viridifasciata, effect of x-radiation on DNA and cell size in embryonic cells of, 138.

Chromatophores, diurnal rhythm of, in Uca, 71.

Chromatophorotropic hormones, sources and activities in crabs of genus Sesarma, 241.

Chymotrypsin, action of, on mating type substances of P. calkinsi, 99.

CIERESZKO, LEON S. An application of ion-exchange resins to the isolation of amino acids from biological material, 194.

CIERESZKO, LEON S. Studies on the nonsaponifiable fraction of lipid material from marine animals, 237.

CIERESZKO, LEON S., M. L. KARNOVSKY and ANN BRUMM. Urea adduct formation as a means of separating components of lipid mixtures, 207.

Ciona intestinalis, uptake of vanadium by, 84.

CLAFF, C. LLOYD. *See* P. F. SCHOLANDER, 178.

Cleavage pattern, modification of, in lobeless Ilyanassa eggs, 218.

CLEMENT, ANTHONY C. Modification of the cleavage pattern in Ilyanassa through removal of the polar lobe, 218.

CLEMENT, ANTHONY C. The mesoderm question in lobeless Ilyanassa eggs, 218.

CLOWES, G. H. A. *See* A. K. KELTCH, 220.

CLOWES, G. H. A., A. K. KELTCH and C. P. WALTERS. On the effects exerted by calcium chloride and by freezing and thawing on the anaerobic, dinitrocresol-resistant phosphorylating mechanism of homogenates of Arbacia eggs, 220.

CLOWES, G. H. A., A. K. KELTCH and C. P. WALTERS. On a dinitrocresol-resistant phosphorylating mechanism present in cell-free homogenates of unfertilized Arbacia eggs, 219.

COHEN, SEYMOUR S. Enzymes of a ribose-forming pathway during the early embryonic development of Chaetopterus, 237.

COLWIN, ARTHUR L. and LAURA H. COLWIN. On the nature of the membranes in the egg of Saccoglossus kowalevskii: effects of certain chemical solutions, 221.

COLWIN, LAURA H. and ARTHUR L. COLWIN. Changes of shape and position of the

egg with reference to membranes following fertilization in Saccoglossus kowalevskii, 221.
Commensal hydroid of the mantle cavity of an oyster, 162.
Cooling as a stimulus to smooth muscle, 202.
Copper, valence of, in hemocyanin, 239.
CORLISS, JOHN O. *See* HORACE W. STUNKARD, 319.
CORNMAN, IVOR. Specificity of steroids which inhibit heart beat, 199.
CORNMAN, IVOR. *See* EDWARD F. ROGERS, 227.
CORNMAN, IVOR and EDWARD F. ROGERS. Alleviation of the anti-mitotic effect of rotenone by alpha tocopherol, 208.
Cortex, physical study of, in Chaetopterus egg, 213.
Cortical granules, behavior in methylated xanthine effects, 207.
Cortical layer of Arbacia eggs, movement of, 208.
Cow, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
Crab, chloride ion regulation and oxygen consumption in, 259.
Crab, fiddler, studies of daily rhythmicity of, 71.
Crabs, chromatophorotropic hormones in, 241.
Crassostrea rhizophorae, new commensal hydroid in mantle cavity of, 162.
Crassostrea virginica, existence of physiologically-different races in, 151.
CROSS, HELEN. *See* LILLIAN K. SCHNEIDER, 203.
CROWELL, SEARS. *See* N. T. MATTOX, 162.
CURRIER, JOANNE, E. *See* MADELENE E. PIERCE, 226.
Cytochemical studies on grasshopper embryonic nuclei, 138.
Cytochemical studies on rat cells, 95.
Cytochrome system of starfish sperm, 216.
Cyto-embryology in sea urchins, 237.
"Cytofertilizin," absence of, in Arbacia eggs, 218.
Curare effect and axonal conduction, 199.

DAILY rhythmicity of fiddler crab, studies of, 71.
DALES, R. PHILLIPS. An annual history of a population of Nereis diversicolor O. F. Müller, 131.
DAN, KATSUMA. Cyto-embryology in sea urchins, 237.
DAN, KATSUMA. The movement of the cortical layer of Arbacia eggs in Ca-free medium through cleavage and the resting stage, as revealed by the shift of the pigment granules, 208.
DAVIS, E. F. *See* H. S. MASON, 195.
Desoxyribonucleic acid, effects of x-radiation on, in grasshopper embryonic nuclei, 138.
Desoxyribosenucleic acid in rat cells, 95.
Detergent action of Nereis sperm extract, 226.
Development of the slime bacterium, C. crocatus, 194.
Development, oxygen uptake during, 47.
Deuterium incorporation of into Arbacia egg proteins, 209.
DEY, T. *See* A. K. PARPART, 200.
Diatoms, phosphate utilization by, 274.
Dinitrocresol-resistant phosphorylating mechanism in Arbacia, 219.
Distal retinal pigment and illumination, relationship in Palaemonetes, 228.
Distribution of P^{32} in Callinectes during the molting cycle, 211.
Diurnal rhythm in controlling mechanism of distal retinal pigment of Palaemonetes, 231.
Diurnal rhythm of chromatophores in Uca, 71.
DNA, effect of x-radiation on, in grasshopper embryonic nuclei, 138.
DNA fraction in cell nucleus, 236.
DNA, nuclear volumes and amount of intranuclear proteins in rat cells, 95.
Dodecyl ammonium chloride, nature of hemolytic action of, 200.
Dog, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
DONOVAN, JOANNE. *See* CHARLES B. METZ, 202.
Drugs inhibiting growth and nucleic acid synthesis in Arbacia embryos, 204.
DURYEE, WILLIAM R. *See* CLAUDE A. VILLEE, 231.

EFFECT of parrot fish thyroid gland on metamorphosis in frog tadpoles, 157.
Effect of stretch on action potentials in muscle, 194.
Effect of x-radiation on DNA and on size of grasshopper embryonic nuclei, 138.
Effects of antithyroid drugs on I^{131} uptake by frog thyroid, 62.
Eggs, re-fertilization of fertilized, 335.
Electric response, retinal, in Limulus ocelli, 114.
Embryos, effects of maleic hydrazide on growth in, 285.
ENAMI, MASASHI. The sources and activities of two chromatophorotropic hormones in crabs of the genus Sesarma. II. Histology of incretory elements, 241.
Encystment and excystment in Dileptus, 216.
Enzymes, action of, on mating type substances in P. calkinsi, 99.

Enzymes of a ribose-forming pathway during the early embryonic development of Chaetopterus, 237.
Erythrocyte, microchemical reactions of, 201.
Erythrocytes, isotonic solutions for, 208.
Ethanol, solubilities of vertebrate fibrinogens in, 171.
Eugymnanthea ostrearum, new commensal hydroid in mantle cavity of oysters, 162.
Euherdmania, vanadium content of, 84.
Existence of physiologically-different races of oysters, Crassostrea virginica, 151.

FEINSTEIN, B. *See* B. LIBET, 194.

Fertilized sea urchin eggs, re-fertilization of, 335.
Fertilizin agglutination of dead sperm, 202.
Fertilizin, chromatographic analysis of, 215.
Feulgen reaction in grasshopper embryonic nuclei, 138.
Fibrinogens, vertebrate, solubilities in plasma-ethanol mixtures, 171.
Fiddler crab, studies of daily rhythmicity of, 71.
FINGERMAN, MILTON. *See* FRANK A. BROWN, JR., 217.
Fishes, nitrogen tension in swimbladder of, 178.
FLEMISTER, LAUNCE J., and SARAH C. FLEMISTER. Chloride ion regulation and oxygen consumption in the crab Ocypode albicans, 259.
Flight mechanism of flies, 199.
Foreleg, indicator patterns in regeneration of, in T. torosus, 121.
FORSTHOEFEL, PAUL. The occurrence of twinning in Fundulus heteroclitus after centrifugation, 221.
Frog tadpoles, effect of parrot fish thyroid on metamorphosis of, 157.
Frog thyroid, effects of antithyroid drugs on I^{131} uptake of, 62.
FURSHPAN, E. *See* EDWARD G. BOETTIGER, 199.

GARTER snake, relationship between parapysis and paraventricular nucleus in, 106.
Gas, method for analysis of, in swimbladders of fishes, 178.
Gastric mucosa, nuclear volumes, amounts of intranuclear proteins and DNA in cells of, 95.
Glutathione in body fluids of marine worms, 225.
GOLDBERG, EDWARD D., WILLIAM MCBLAIR and KENNETH M. TAYLOR. The uptake of vanadium by tunicates, 84.
GOLDBERG, EDWARD D., THEODORE J. WALKER and ALICE WHISENAND. Phosphate utilization by diatoms, 274.
Gradients in regeneration of forelimb and tail in T. torosus larvae, 121.
Grasshopper embryonic nuclei, effects of x-radiation on size and DNA in, 138.
GREEN, J. W. *See* A. K. PARPART, 212.
GREEN, JAMES W. and JOSEPH F. HOFFMAN. Isotonic solutions for fish erythrocytes, 208.
GREULACH, VICTOR A., JOHN MCKENZIE and EMILY M. STACY. The effect of maleic hydrazide on the embryonic and larval growth of three amphibians, 285.
GROSCH, DANIEL S. The ingestion capacity of the wasp Habrobracon, 222.
GROSS, PAUL R. The lytic action of calcium ions on the pigment granules of the Arbacia egg, 209.
Growth of Nereis diversicolor, 131.
GUYSELMAN, J. BRUCE. A new method for determining calcium concentrations in biological materials, 222.

HARRINGTON, NYRA J. and ROBERT W. KOZA. Effect of x-radiation on the desoxyribonucleic acid and on the size of grasshopper embryonic nuclei, 138.
Heat-activated Nereis egg, cytology of, 224.
Heat, cytological effects of on Nereis eggs, 225.
Heat death in Phascolosoma, 206.
HEILBRUNN, L. V. *See* WALTER L. WILSON, 213.
Hemolysis and potassium content of red cells, 200.
Hemolysis of sheep erythrocytes by organic mercury compounds, 204.
HINES, MARGARET N. *See* FRANK A. BROWN, JR., 217.
Histology of incretory elements in Sesarma, 241.
HOBERMAN, HENRY D. and CHARLES B. METZ. Incorporation of deuterium into proteins of Arbacia eggs suspended in heavy water, 209.
HOCK, RAYMOND J. The metabolic rates and body temperatures of bats, 289.
HOFFMAN, JOSEPH F. *See* JAMES W. GREEN, 208; A. K. PARPART, 212.
Hormones, chromatophorotropic in crabs, 241.
Hormones controlling the distal retinal pigment of P. vulgaris, 217.
Hyaluronidase, action of, on mating type substances of P. calkinsi, 99.
Hydroid commensal in mantle cavity of an oyster, 162.
Hydrostatic pressure of Fundulus egg, 206, 210.

I^{131}, effects of antithyroid drugs on uptake of, 62.
Incretory elements, histology of, in Sesarma, 241.

Indicator patterns in regeneration of tail and foreleg in T. torosus, 121.
Indophenol reaction in regenerating foreleg and tail of T. torosus larvae, 121.
Influence of direct current on distribution of ions in dog nerve, 198.
Ingestion capacity of Habrobracon, 222.
Intranuclear proteins, nuclear volumes and DNA in rat cells, 95.
Iodine studies in Ascophyllum, using I^{131}, 239.
Irradiation, effect of on DNA and on size of grasshopper embryonic nuclei, 138.
Isolated blastomeres, oxygen uptake of, 47.

JACOBS, M. H. Some differential permeability effects of n-butyl alcohol, 210.
JACOBS, M. H. Some microchemical reactions of the erythrocyte, 201.
JACOBS, W. P. Auxin as the hormonal factor normally limiting the differentiation of xylem cells around a wound, 196.
JACOBS, W. P. Auxin control of rhizoid-formation in Bryopsis, 238.
JACOBS, W. P. Studies on cell-differentiation: the role of auxin in algae, with particular reference to rhizoid-formation in Bryopsis, 300.
Jelly of Nereis eggs, 226.
JOHNSON, WILLIAM H. *See* JOHN F. PERKINS, JR., 202.
JOHNSON, WILLIAM H. and JOHN F. PERKINS, JR. Measurement of viscosity and elasticity of smooth muscles during contraction, 210.
JOHNSTON, CHAMBLESS. *See* JOHN T. BONNER, 194.
JØRGENSEN, C. BARKER. Rates of feeding and oxygen uptake in some filter feeding marine invertebrates, 238.

KAO, CHIEN-YUAN. Micropuncture and the localization of the subsequently-forming blastodisc in the unfertilized Fundulus egg, 222.
KAO, CHIEN-YUAN. *See* ROBERT CHAMBERS, 206.
KAO, CHIEN-YUAN, ROBERT CHAMBERS and EDWARD L. CHAMBERS. The internal hydrostatic pressure of the unfertilized Fundulus egg activated by puncture, 210.
KARNOVSKY, M. L. Studies in carbohydrate and lipid metabolism, using C^{14}-labelled glycerol, 203.
KARNOVSKY, M. L. The metabolism of alpha-glyceryl ethers in marine animals, 238.
KARNOVSKY, M. L. *See* LEON S. CIERESZKO, 207.
KELLER, R. Vital staining by fluorescent dyes, 211.
KELLY, JOHN W. Effects of x-ray and trypsin on the metachromasy of heparin-basic protein combinations, 223.
KELLY, JOHN W. Metachromasy associated with various eggs and ovaries, 223.
KELLY, SALLY and NORMAN BAILY. Iodine studies in Ascophyllum using radioactive iodine, 239.
KELTCH, A. K. *See* G. H. A. CLOWES, 219, 220.
KELTCH, A. K., M. P. SMYTHE AND G. H. A. CLOWES. Phosphorus uptake of cell-free homogenates of unfertilized Arbacia eggs under aerobic and anaerobic conditions, 220.
KING, JOHN W. The effect of forced aeration on the longevity of Laminaria, 224.
KISCH, BRUNO. The skin as an organ of excretion in squids, 224.
KLOTZ, IRVING M. *See* EDWIN H. BATTLEY, 215; ROBERT A. RESNIK, 227.
KOZA, ROBERT W. *See* NYRA J. HARRINGTON, 138.
KUNTZ, ELOISE. Distribution of P^{32} in Callinectes during the molting cycle, 211.
KUTSKY, PHYLLIS B. *See* WILLIAM E. BERG, 47.

LARVAE (T. torosus), indicator patterns in regeneration of tail and forelimb in, 121.
LAVIN, GEORGE I. *See* RUTH P. ALSCHER, 215.
Lecithinase, action of on mating type substances in P. calkinsi, 99.
LEUCHTENBERGER, CECILIE and FRANZ SCHRADER. Relationship between nuclear volumes, amount of intranuclear proteins and desoxyribosenucleic acid (DNA) in various rat cells, 95.
LIBET, B., H. J. RALSTON and B. FEINSTEIN. The effect of stretch on action potentials in muscle, 194.
LIEB, JOEL R. *See* CHARLES G. WILBER, 234.
Life-history of Microphallus limuli, 307.
Limulus, characteristics of retinal electric response in ocelli of, 114.
Lipids in the northern pike, 197.
Liver cells, rat, DNA in, 95.
Localization of vanadium in ascidians, 84.
Longevity, effect of forced aeration on, in Laminaria, 224.
LOOSANOFF, V. L. and C. A. NOMEJKO. Existence of physiologically-different races of oysters, Crassostrea virginica, 151.
LOVE, WARNER E. The nature of the hemolytic action of dodecyl ammonium chloride, 200.
LOVELACE, ROBERTA. A cytological study of heat-activated Nereis eggs, 224.

LOVELACE, ROBERTA. Some cytological effects of heat on Nereis eggs, 225.
Luciferin, status of chemistry of, 195.
Lysozyme, action of on mating type substances of P. calkinsi, 99.

MACDONALD, SR. ELIZABETH SETON and CHARLES G. WILBER. Glutathione in the body fluids of marine worms, 225.
Maleic hydrazide, effect of on amphibian embryos and larvae, 285.
Mantle cavity, new commensal hydroid of, in oyster, 162.
Marine fishes, nitrogen tension in swimbladder of, 178.
MASON, H. S. and E. F. DAVIS. Status of the chemistry of Cypridina luciferin, 195.
Mating type substances, action of enzymes on, in P. calkinsi, 99.
MATTHEWS, SAMUEL A. and FRANK ASH. The effect of parrot fish thyroid gland on metamorphosis in frog tadpoles, 157.
MATTOX, N. T. and SEARS CROWELL. A new commensal hydroid of the mantle cavity of an oyster, 162.
MCBLAIR, WILLIAM. *See* EDWARD D. GOLDBERG, 84.
MCKENZIE, JOHN. *See* VICTOR A. GREULACH, 285.
Membranes of Saccoglossus egg, nature of, 221.
Mercury compounds and thiols, polarographic investigations of reaction between, 196.
Mesoderm in lobeless Ilyanassa eggs, 218.
Metabolic rates and body temperatures of bats, 289.
Metabolism of alpha-glyceryl ethers in marine animals, 238.
Metabolism of fetal and placental tissues, 195.
Metachromasy associated with various eggs and ovaries, 223.
Metachromasy of heparin-basic protein combinations, effects of x-rays and trypsin on, 223.
Metamorphosis, effect of parrot fish thyroid on, in frog tadpoles, 157.
METZ, CHARLES B. *See* HENRY D. HOBERMAN, 209; HANS BOREI, 216.
METZ, CHARLES B. and WINIFRED BUTTERFIELD. Action of various enzymes on the mating type substances of Paramecium calkinsi, 99.
METZ, CHARLES B. and JOANNE DONOVAN. Specific fertilizin agglutination of dead sperm, 202.
Microphallus limuli, observations on morphology and life-history of, 307.
Micropuncture of Fundulus egg, 222.
Modifications by photoperiod of daily rhythmicity in fiddler crabs, 71.
Morphology of Microphallus, observations on, 307.
MORRISON, PETER R., CHARLES SCUDDER and WILLIAM BLATT. The solubilities of some vertebrate fibrinogens in plasma-ethanol mixtures, 171.
Mucous epithelial cells, cytochemical studies on, 228.
Muscle, effect of stretch on action potentials in, 194.
Mytilus edulis, physiological studies of differentiation in, 47.

NACHMANSOHN, D. The curare effect and axonal conduction, 199.
Natural population of N. diversicolor, annual history of, 131.
n-butyl alcohol, differential permeability effects of, 210.
Necturus, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
Neotetrazolium chloride, reduction of by x-radiated root tip cells of Allium, 230.
Nereis diversicolor, annual history of a natural population of, 131.
Neurosecretion. X. A relationship between the paraphysis and the paraventricular nucleus in the garter snake (Thamnophis sp.), 106.
Neurosecretory pathway in Thamnophis, 106.
Nitrogen tension in the swimbladder of marine fishes in relation to the depth, 178.
NOMEJKO, C. A. *See* V. L. LOOSANOFF, 151.
Nonsaponifiable lipid material, studies on, 237.
Nuclear size, effect of x-radiation on, in grasshopper embryos, 138.
Nuclear volumes, amount of intranuclear proteins and DNA in rat cells, 95.
Nucleolus, role of in spindle formation, 214.

OBERHOLZER, RUDI J. H. Influence of various potassium concentrations on the oxygen consumption of frog nerves, 198.
Observations on morphology and life-history of Microphallus limuli, n. sp., 307.
Ocelli, characteristics of retinal electric response of, in Limulus, 114.
Ocypode albicans, chloride ion regulation and oxygen consumption in, 259.
OSTERHOUT, W. J. V. Behavior of jelly in eggs of Nereis limbata, 226.
OSTERHOUT, W. J. V. Detergent action of sperm extract in Nereis limbata, 226.
Oxidation-reduction dyes and "lithium larvae," 217.
Oxidation-reduction indicator patterns in regeneration of the foreleg and tail of Triturus torosus larvae, 121.

Oxygen consumption and chloride ion regulation in crabs, 259.
Oxygen uptake of isolated blastomeres and polar lobes, 47.
Oyster, new commensal hydroid in mantle cavity of, 162.
Oysters, physiologically-different races of, 151.
Oysters, relation of growth to ecology, 226.

PANDAZI, ANDREW A. *See* V. J. WULFF, 114.
Paramecium calkinsi, action of enzymes on mating type substances of, 99.
Paraphysis, relationship between paraventricular nucleus and, in Thamnophis, 106.
Paraventricular nucleus, relationship between paraphysis and, in Thamnophis, 106.
Parietal cells, nuclear volumes, intranuclear proteins and DNA in, 95.
PARPART, A. K., E. R. PARPART and T. DEY. The relation between hemolysis and the potassium content of red cells, 200.
PARPART, A. K., J. F. HOFFMAN and J. W. GREEN. The case against a correlation between flicker and metabolism of red cells, 212.
Parrot fish thyroid, effect of, on frog tadpole metamorphosis, 157.
Periblast in teleost gastrulation, 201.
PERKINS, JOHN F., JR. *See* WILLIAM H. JOHNSON, 210.
PERKINS, JOHN F., JR. and WILLIAM H. JOHNSON. Cooling as a stimulus to smooth muscle, 202.
Phosphorus metabolism in Arbacia embryos as a function of temperature, 231.
Phosphorus metabolism in T. pyrrhogaster ovarian eggs, 231.
Phosphate utilization by diatoms, 274.
Phosphorylating mechanism, effects of calcium chloride, freezing and thawing on, in Arbacia, 220.
Photometric estimation of DNA in grasshopper embryonic nuclei, 138.
Photometric estimation of DNA in rat cells, 95.
Photoperiod, modification by, in daily rhythmicity of fiddler crab, 71.
Physiological studies in differentiation, 47.
Physiologically-different races of oysters, 151.
PIERCE, MADELENE E. and JOANNE E. CURRIER. The relation of the growth of oysters to different ecological conditions in Rand's Harbor, 226.
Plasma-ethanol mixtures, solubilities of vertebrate fibrinogens in, 171.
Polar lobes, oxygen uptake of, 47.
POLLEN, RICHARD. *See* ALLEN SCOTT, 229.
Population density of Nereis diversicolor, 131.
Potassium, influence of, on oxygen consumption of frog nerves, 198.
Potentials, action, in Limulus ocelli, 114.
Propagated changes in light scattering accompanying activity in nerve, 205.
Propylthiouracil-treated thyroid, effect of on amphibian metamorphosis, 157.
Protein crystals, water in, 235.
Protein molecules with relatively low molecular weights, 234.
Proteins, intranuclear, in rat cells, 95.
Ptyalin, action of on mating type substances of P. calkinsi, 99.
Pumping rates in Ciona intestinalis, 84.

RABBIT, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
Races of oysters, 151.
Radioactive iodine, effects of antithyroid drugs on uptake of, 62.
Radioactive vanadium, uptake of by tunicates, 84.
RALSTON, H. J. *See* B. LIBET, 194.
Rana catesbiana, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
Rana clamitans, effects of antithyroid drugs on I^{131} uptake by thyroid of, 62.
Rana clamitans, effects of parrot fish thyroid on metamorphosis of, 157.
Rana pipiens, effects of antithyroid drugs on I^{131} uptake by thyroid of, 62.
Rana pipiens, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
Rat cells, nuclear volumes, amount of intranuclear proteins and DNA in, 95.
Rates of feeding and oxygen uptake in filter-feeding marine invertebrates, 238.
Re-fertilization of fertilized sea urchin eggs, 335.
Regeneration of tail and forelimb, indicator patterns in, 121.
Regulation, chloride ion, in crabs, 259.
Relation of depth to nitrogen tension in swimbladder of marine fishes, 178.
Relationship between nuclear volumes, amount of intranuclear proteins and desoxyribosenucleic acid (DNA) in various rat cells, 95.
Relationship between paraphysis and paraventricular nucleus in Thamnophis, 106.
RESNIK, ROBERT A. and IRVING M. KLOTZ. Sedimentation constant of hemerythrin, 227.
Respiration of isolated blastomeres and polar lobes, 47.
Respiration of Spisula eggs, 228.
Response, retinal electric in Limulus ocelli, 114.
Retinal electric response, characteristics of, in Limulus ocelli, 114.
Revision of the family Umagillidae, 319.

Rhizoid-formation in Bryopsis, 300.
Rhythmicity of fiddler crab, studies of, 71.
Ribonuclease, action of on mating type substances of P. calkinsi, 99.
Ribonuclease, new assay method for, 212.
ROGERS, EDWARD F. *See* IVOR CORNMAN, 208.
ROGERS, EDWARD F. and IVOR CORNMAN. The potency of rotenone and related compounds in inhibiting division of sea urchin eggs, 227.
RONKIN, R. R. and E. RONKIN. Cytochemical studies on mucous epithelial cells, 228.
Rotenone, potency in inhibiting division of sea urchin eggs, 227.
ROTH, JAY S. The action of crystalline ribonuclease on phosphate labeled nucleic acid: a new assay method for ribonuclease, 212.

SANDEEN, MURIEL I. and FRANK A. BROWN, JR. The relationship between the state of distal retinal pigment and illumination in Palaemonetes, 228.
SCHARRER, ERNST. Neurosecretion. X. A relationship between the paraphysis and the paraventricular nucleus in the garter snake (Thamnophis sp.), 106.
SCHNEIDER, LILLIAN K. and HELEN CROSS. A selective mechanism in Escherichia coli, 203.
SCHOLANDER, P. F., C. LLOYD CLAFF, C. T. TENG and V. WALTERS. Nitrogen tension in the swimbladder of marine fishes in relation to the depth, 178.
SCHRADER, FRANZ. *See* CECILIE LEUCHTENBERGER, 95.
SCLUFER, EVELYN. Respiration of Spisula eggs, 228.
SCOTT, ALLAN and RICHARD POLLEN. The effect of calcium and temperature on furrowing in Arbacia, 229.
SCHULMAN, MARTIN P. and GEORGE WALD. The valence of copper in hemocyanin, 239.
SCUDDER, CHARLES. *See* PETER R. MORRISON, 171.
Sea urchin, re-fertilization of fertilized eggs of, 335.
Sea water, nitrogen tension in, 178.
Sea water, removal of vanadium from, by ascidians, 84.
Sedimentation constant of hemerythrin, 227.
Selective mechanism in E. coli, 203.
Sesarma, sources and activities of two chromatophorotropic hormones in, 241.
Shape changes in Saccoglossus egg, 221.
SHAVER, J. R. The occurrence of twinning in Fundulus heteroclitus after centrifugation, 201.
SHAW, SAMUEL N. and JULIAN M. TOBIAS. Preliminary measurements of birefringence changes due to electrical polarization of isolated squid giant axones, 229.
SLANE, G. M. *See* CHARLES G. WILBER, 234.
SMYTHE, M. P. *See* A. K. KELTCH, 220.
Sodium and potassium, interaction with hemoglobin and hemerythrin, 215.
SOLOMON, SIDNEY and JULIAN M. TOBIAS. Changes in light emerging from the squid giant axone during activity: use of an intra-axonal light source, 213.
SOLOMON, SIDNEY and JULIAN M. TOBIAS. Influence of direct current on the long axis distribution of K, Ca and Na in dog nerve, 198.
Solubilities of some vertebrate fibrinogens in plasma-ethanol mixtures, 171.
SONNENBLICK, B. P. Reduction of neotetrazolium chloride by x-radiated root tip cells of Allium, 230.
Sources and activities of two chromatophorotropic hormones in crabs of the genus Sesarma. II. Histology of incretory elements, 241.
Specificity of steroids which inhibit heart beat, 199.
Squid, activity of chromatophores in, 233.
Squid, excretion in, 224.
Squid giant axone, changes in light emerging from, during activity, 213.
Squid giant axone, measurement of birefringence changes due to electrical polarization in, 229.
Squid giant axone, pH determinations in, 233.
STACY, EMILY M. *See* VICTOR A. GREULACH, 285.
STADLER, DAVID. Chemotropism in Rhizopus nigricans: the staling reaction, 199.
STEPHENS, GROVER. C. *See* FRANK A. BROWN, JR., 71.
Studies of the daily rhythmicity of the fiddler crab, Uca. Modifications by photoperiod, 71.
Studies on cell-differentiation: the role of auxin in algae, with particular reference to rhizoid-formation in Bryopsis, 300.
STUNKARD, HORACE W. Observations on the morphology and life-history of Microphallus limuli n. sp. (Trematoda: Microphallidae), 307.
STUNKARD, HORACE W. and JOHN O. CORLISS. New species of Syndesmis and a revision of the family Umagillidae Wahl, 1910 (Turbellaria: Rhabdocoela), 319.
Styela, vanadium content of, 84.
SUGIYAMA, MASAO. Re-fertilization of the fertilized eggs of the sea urchin, 335.

Sulfanilamide, effects of on uptake of I^{131} by frog thyroid, 62.
Swimbladder, nitrogen tension in, 178.
Syndesmis, new species of, 319.

TAIL, indicator patterns in regeneration of, in T. torosus larvae, 121.
Taxonomy of genus Eugymnanthea, 162.
TAYLOR, KENNETH M. *See* EDWARD D. GOLDBERG, 84.
TENG, C. T. *See* P. F. SCHOLANDER, 178.
Tension, nitrogen, in swimbladders of marine fishes, 178.
Thamnophis, relationship between paraphysis and paraventricular nucleus in, 106.
Thiocyanate, effects of on uptake of I^{131} by frog thyroid, 62.
Thiourea, effects of on uptake of I^{131} by frog thyroid, 62.
Thomas, Lyell J. A blood anti-coagulant from surf clams, 230.
Thyroid, effects of antithyroid drugs on I^{131} uptake of, 62.
Thyroid, parrot fish, effect of on frog tadpole metamorphosis, 157.
TOBIAS, JULIAN M. *See* SHIRLEY H. BRYANT, 205; SIDNEY SOLOMON, 198, 213; SAMUEL N. SHAW, 229.
Trematoda: Morphology and life-history of Microphallus, 307.
TRINKAUS, J. P. Significance of the periblast in teleost gastrulation, 201.
Triturus torosus, indicator patterns in regeneration of tail and forelimb of larvae of, 121.
Trypsin, action of, on mating type substances of P. calkinsi, 99.
Tunicates, uptake of vanadium by, 84.
Turbellaria: new species of Syndesmis and revision of family Umagillidae, 319.
Turtles, solubility of fibrinogen of, in plasma-ethanol mixtures, 171.
Twinning in F. heteroclitus after centrifugation, 201, 221.

UMAGILLIDAE, 319.

Uptake of I^{131}, effects of certain antithyroid drugs on, 62.
Uptake of vanadium by tunicates, 84.
URCHEL, HAROLD CLIFTON. *See* JOHN T. BONNER, 194.
Urea adduct formation as means of separating components of lipid mixtures, 207.
Uca, studies of daily rhythmicity of, 71.

VANADIUM, uptake of by tunicates, 84.
Vertebrate fibrinogens, solubilities in plasma-ethanol mixtures, 171.
Vertical migrations of marine fishes, 178.
VILLEE, CLAUDE A. *See* DOROTHY T. BALZER, 204.
VILLEE, CLAUDE A. and DOROTHY T. BALZER. Phosphorus metabolism in developing sea urchin embryos as a function of temperature, 231.
VILLEE, CLAUDE A. and DOROTHY T. BALZER. Studies on the metabolism of fetal and placental tissues, 195.
VILLEE, CLAUDE A. and WILLIAM R. DURYEE. Studies of phosphorus metabolism in ovarian eggs of the salamander, Triturus pyrrhogaster, 231.
Viscosity and elasticity of smooth muscles during contraction, measurement of, 210.
Vital staining by fluorescent dyes, 211.

WALKER, THEODORE J. *See* EDWARD D. Goldberg, 274.
WALD, GEORGE. *See* MARTIN P. SCHULMAN, 239.
WALTERS, C. P. *See* G. H. A. CLOWES, 219, 220.
WALTERS, V. *See* P. F. SCHOLANDER, 178.
WEBB, H. MARGUERITE and FRANK A. BROWN, JR. Diurnal rhythm in the controlling mechanism of distal retinal pigment of Palaemonetes, 231.
WHISENAND, ALICE. *See* EDWARD D. GOLDBERG, 274.
WICHTERMAN, RALPH. Effects of x-rays upon conjugant and vegetative stages of Paramecium calkinsi, 232.
WICHTERMAN, RALPH. The effects of x-rays upon dividing and non-dividing cells: Paramecium caudatum, 232.
WIERCINSKI, FLOYD J. Activity of chromatophores in the integument of the squid, 233.
WIERCINSKI, FLOYD J. pH determinations in the giant nerve fiber of the squid, 233.
WILBER, CHARLES G. Blood and liver lipids in the northern pike, Esox lucius, 197.
WILBER, CHARLES G. *See* SR. ELIZABETH SETON MACDONALD, 225.
WILBER, CHARLES G., JOEL R. LIEB and G. M. SLANE. Lipids in frog blood, 234.
WILSON, I. B. Reaction of substrates and inhibitors with the surface of acetylcholinesterase, 199.

WILSON, WALTER L. and L. V. HEILBRUNN. A physical study of the protoplasmic cortex of the Chaetopterus egg, 213.
Worms, annual history of a natural population of, 131.
WRINCH, DOROTHY. Protein molecules with relatively low molecular weights, 234.
WRINCH, DOROTHY. Water in protein molecules, 235.
WULFF, V. J. and ANDREW A. PANDAZI. Characteristics of the retinal electric response of the ocelli of Limulus, 114.

X-RAYS, effects on P. calkinsi, 232.
X-rays, effects on P. caudatum, 232.
X-radiation, effect of on DNA and on size of grasshopper embryonic nuclei, 138.